code for receiving one or more images of at least two of a plurality of components of at least one of a plurality of cells that have been exposed to the manipulation, wherein said manipulation is selected from the group consisting of applying a hormone, applying a growth factor, applying an extracelluar matrix component, applying a virus, applying an electroporation, applying an antisense polynucleotide, applying a gene knock-out, applying a gene overexpression, applying a gene mutation, applying a cell fusion, and combinations thereof;

code for determining at least one of a plurality of features of a first component of said at least two of a plurality of components and at least one of a plurality of features of a second component of said at least two of a plurality of components;

C1 cont'd

code for determining a plurality of descriptors, wherein said code for determining a plurality of descriptors comprises code for performing principal component analysis on said plurality of descriptors, wherein said descriptors comprise at least one said plurality of features of said first component or at least one of a plurality of features of said second component and wherein at least one of said plurality of descriptors is formed by combining features of said first component and said second component;

code for searching a plurality of descriptors obtained from a database to locate descriptors based upon one of said descriptors of said manipulation, said searching forming a plurality of located descriptors;

code for determining, based upon said located descriptors, properties of said manipulation based upon said located descriptors; and

a computer readable storage medium for holding the codes.

Sub E3

56. (Amended) A computer program product comprising a machine readable medium on which is provided program instructions for determining an effect of a manipulation on a plurality of cells, the instructions comprising:

C2

code for receiving one or more images of at least one of the plurality of cells that have been exposed to the manipulation;

code for determining, from the one or more images, a first descriptor for a first component of at least one of the plurality of cells and a second descriptor for a second component of at least one of the plurality of cells; and

code for analyzing the first and second descriptors to determine the effect of the manipulation on the plurality of cells, said code for analyzing the first and second descriptors comprising code for performing principal component analysis on the first and second descriptors.